



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/757,906	01/10/2001	Johnny Shepherd	1280.00281	8286

7590

08/05/2004

David E. Bennett  
Coats & Bennett  
Suite 300  
1400 Crescent Green  
Cary, NC 27511

EXAMINER
----------

NGUYEN, DAVID Q

ART UNIT	PAPER NUMBER
2681	6

DATE MAILED: 08/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/757,906

Applicant(s)

JOHNNY SHEPHERD,  
HILLSBOROUGH, NC;

Examiner

David Q Nguyen

Art Unit

2681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 June 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-21 and 29-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 22-28 and 32-35 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 15-21 and 29-31, drawn to performing a soft-handoff and a hard-handoff, classified in class 455, subclass 436.
  - II. Claims 22-28 and 32-35, drawn to assigning a first frequency and second frequency to a target radio head, classified in class 455, subclass 450.
2. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the method of hand-off in group I discloses performing soft-handoff and hard-handoff. The subcombination has separate utility such as assigning a first and second frequency to the target radio head.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

The group II, claims 22-28 and 32-35 are newly submitted directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The originally presented invention drawn to performing a soft handoff and a hard

Art Unit: 2681

handoff. The group II, claims 22-28 and 32-35 are newly submitted drawn to assigning a first frequency and second frequency to the target radio head.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 22-28 and 32-35 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Below is a rejection of group I, claims 15-21 and 29-31.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 15,20-21 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott et al. (US 6438376) in view of Atarius et al (US 6526035).

Regarding claims 15 and 29, Elliott et al. discloses a method of handing-off a mobile terminal communicating with a first radio head over a first communication channel and a virtual single cell wireless communication network, the method and the virtual single cell wireless communication network comprising: a plurality of radio heads, each of which is operable to communicate on one or more communication channels (see col. 2, lines 10-17); and a controller to control the plurality of radio heads (see fig. 1 and 2) and configured to:

identifying a target radio head to hand-off the mobile terminal (see col. 5, lines 33-44); performing a hard-handoff to the target radio head if the one or more neighbor radio heads would interfere with the communications on the first communications channel (see col. 2, lines 13-17). Elliott et al. does not mention determining if one or more neighbor radio heads would interfere with communications between the mobile terminal and the target radio head on the first communication channel; performing a soft-handoff to the target radio head if the one or more neighbor heads would not interfere with the communications on the first communication channel. However, Atarius et al discloses determining if one or more neighbor radio heads would interfere with communications between the mobile terminal and the target radio head on the first communication channel (see col. 2, line 61 to col. 3, line 5); performing a soft-handoff to the target radio head if the one or more neighbor heads would not interfere with the communications on the first communication channel (see col. 2, line 61 to col. 3, line 5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Atarius et al to Elliott et al. in order to avoid drop calls due to interference.

Regarding claim 20, the method of Elliott et al. in view of Atarius et al discloses performing a soft-handoff from an original source to a new source that both these sources use same information (same channel, same network, same system) (see col. 2, line 61 to col. 3, line 5 of Atarius). It is apparent that performing a soft-handoff comprising assigning the first communication channel to the target radio head to communicate with the mobile terminal.

Regarding claim 21, the method of Elliott et al. in view of Atarius et al discloses performing a hard-handoff from an original base station to a target base station that both base stations operates using different frequencies (see col. 2, lines 13-17 of Elliott et al.). It is apparent

that performing a hard-handoff comprises assigning a second communication channel to the target radio head to communicate with the mobile terminal.

3. Claims 16 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott et al. (US 6438376) in view of Atarius et al (US 6526035) and further in view of Moore et al. (US Patent Number 6075989)

Regarding claims 16 and 30, the method of Elliott et al. in view of Atarius et al does not mention wherein determining if one or more neighbor radio heads would interfere with communications between the mobile terminal and the target radio head comprises measuring the power of the mobile terminal at the one or more neighbor radio heads. However, Moore et al discloses measuring the power of the mobile terminal at the one or more neighbor radio heads (see col. 2, lines 15-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Moore et al to the method of Elliott et al. in view of Atarius et al in order to setup a handoff to avoid drop calls due to interference.

4. Claims 17-19 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott et al. (US 6438376) in view of Atarius et al (US 6526035) and further in view of Greene, Sr. et al. (US Patent Number 5926763)

Regarding claims 17 and 31, the method of Elliott et al. in view of Atarius et al does not mention determining a signal attenuation between the radio heads; and determining whether a signal from the any of the neighbor radio heads would interfere with communications between the target radio head and the mobile terminal on the first communication channel. However, Greene discloses determining a signal attenuation between the radio heads; and determining

Art Unit: 2681

whether a signal from the any of the neighbor radio heads would interfere with communications between the target radio head and the mobile terminal on the first communication channel (see abstract; col. 1, line 25 to col. 2, line 36; and col. 4, lines 55-67; col. 6, lines 8-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Greene, Sr. et al to the method of Elliott et al. in view of Atarius et al in order to setup a handoff to avoid drop calls due to interference.

Regarding claim 18, the method of Elliott et al. in view of Atarius et al and further in view of Greene, Sr. et al also discloses wherein determining the signal attenuation between the radio heads is based on the geography of a virtual single cell wireless communication network and the layout of the radio heads (see abstract; col. 1, line 25 to col. 2, line 36; and col. 4, lines 55-67; col. 6, lines 8-40 of Greene).

Regarding claim 19, the method of Elliott et al. in view of Atarius et al and further in view of Greene, Sr. et al also discloses wherein determining the signal attenuation is based on periodic measurement of signals between the radio heads (see abstract; col. 1, line 25 to col. 2, line 36; and col. 4, lines 55-67; col. 6, lines 8-40 of Greene).

### ***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Q Nguyen whose telephone number is 703-605-4254. The examiner can normally be reached on 8:30AM-5:30PM.


Art Unit: 2681

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 703-308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*DN*

David Nguyen

  
DAVID HUDSPETH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600